

SYSTEM AND METHOD FOR PROVIDING FREQUENCY DOMAIN  
SYNCHRONIZATION FOR SINGLE CARRIER SIGNALS

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## ABSTRACT OF THE DISCLOSURE

There is disclosed an improved system and method for providing frequency domain synchronization for a single carrier signal such as a vestigial sideband signal. The system comprises a synchronization circuit that is capable of obtaining a coarse frequency estimate of the single carrier signal and a fine frequency estimate of the single carrier signal. The system also comprises a three state machine for obtaining an accurate frequency estimate from three separately obtained frequency estimates. The system also comprises a DC estimator circuit that is capable of providing a time domain DC estimate. The system provides a pilot carrier recovery circuit for single carrier signals that has a linear transfer function.